Objectives: Student will be able to:

Collect and analyze clues/evidence about a genetic disorder in

order to explain the mystery.

**Key Terms:**

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| • asexual reproduction: binary fission,  budding, vegetative  • chromosome number, abnormalities  • DNA, replication, mRNA, tRNA,  rRNA  • DNA: storage of genetic information  • dominant/recessive traits,  heterozygous, homozygous, alleles  • fertilization: zygote  • gene  • mitosis  • meiosis: gametes, crossing over,  gene combinations  • nitrogen bases  • pedigree  • phenotypes, genotypes  • prokaryote, eukaryote  • protein synthesis  • Punnett square, genetic cross,  monohybrid  • ribosomes  • sex-linked traits  • sexual reproduction: angiosperms,  mammals |
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Make a claim and justify, using ideas about the conservation of matter, why new atoms and molecules, must be added to cells in order for them to grow

Construct a representation of the changes that occur in a cell in terms of its size and internal components and of the number of cells produced as a cell goes through a single cycle of cell growth and division.

Estimate and justify how many variations are possible in the set of chromosomes (DNA molecules) that the sex cells of a particular organism (mosquito, fruit fly or other organism with low number of chromosomes) receive during sex cell formation.

Explain sexual reproduction in plants and animals.

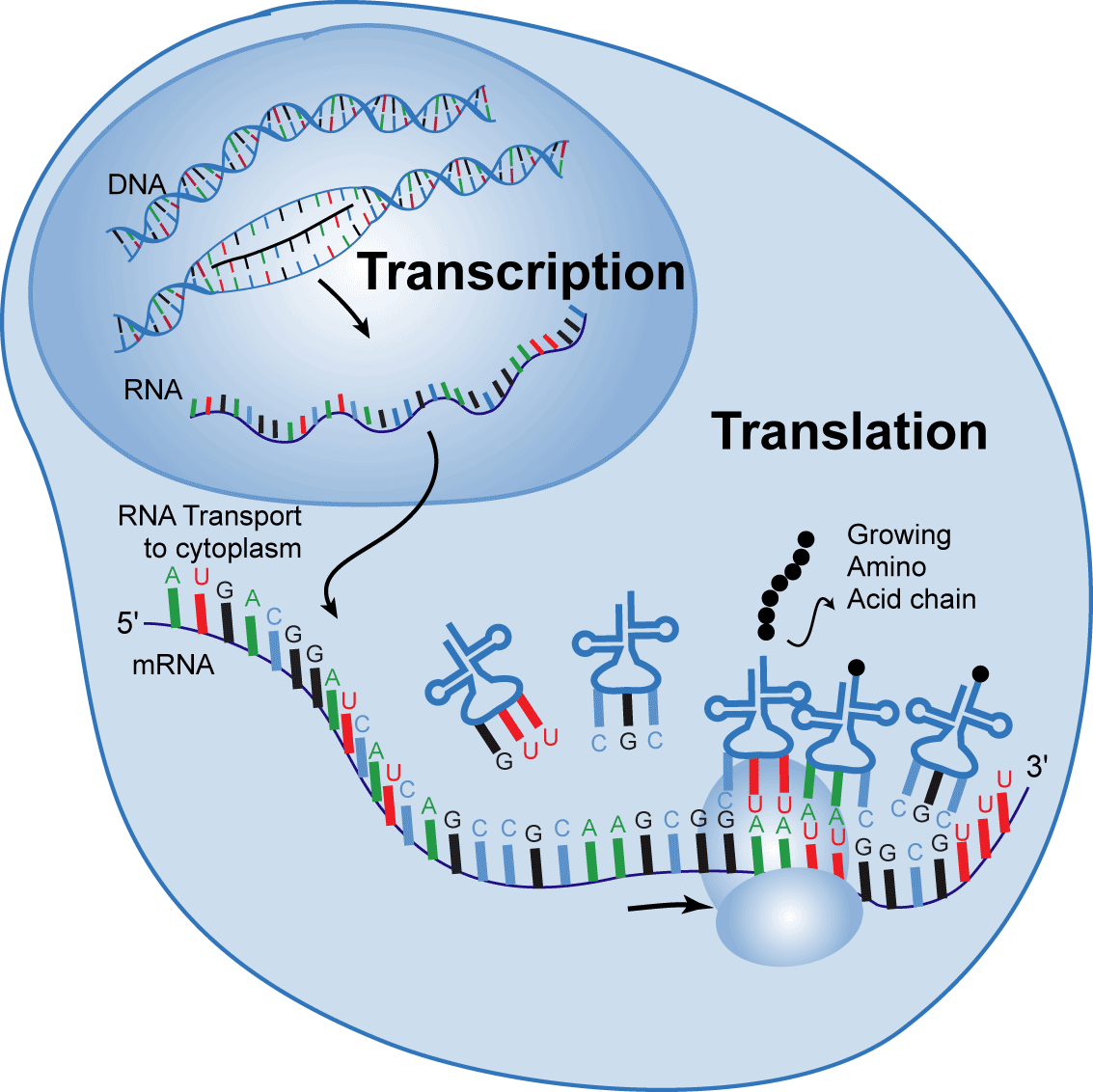
Observe patterns (similar to those observed by Mendel), using data from parent–generation crosses, in traits of parents and offspring.

Analyze the inheritance of color in plants by conducting an investigation. (Lab)

Illustrate and explain how expressed traits are passed from parent to offspring by constructing and analyzing a human pedigree chart.

Analyze the primary structure (amino acid sequence) of specific proteins (e.g., insulin and hemoglobin).

Construct a representation that illustrates the process of the production of the amino acid sequence of a section of a given protein molecule from an organism.





Pertinent Information:

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| **“Big” Ideas** | The sequence of the bases in DNA determines the protein made during protein synthesis.  Sexual reproduction affects the variation among offspring.  Traits are inherited and passed on from one generation to the next. |
| **Essential Question** | ***How can we explain how genetic information is transmitted between parent and offspring after fertilization?***  ***How can we illustrate that characteristics of one generation of organisms are related to the next generation?*** |
| **Enduring Understanding** | DNA carries the genetic information for building proteins.  Mitosis is a cell process that replicates cells for growth and repair.  Organisms have a variety of strategies for asexual and sexual reproduction.  Meiosis produces sex cells containing half of the original number of chromosomes.  The possibility of inheriting a specific expression of a trait can be predicted.  Sex-linked traits appear more often in males. |

Notes: